

- قسم : الطفيليات •
- كلية : الطب - جامعة أسيوط •
- رئيس القسم : أ.د. ماهر مختار زكي •

إصابة الدجاج البرى جالانيولا كلوروبس كلوروبس بطفيل جديد

هيموبروتيس نيتونز كلوروبس من جنس هيموبروتيس بمحافظة أسيوط بعصيد مصر

محمود الهادي منيب ، عاطف س كلا ، أحمد مندور

أثناء اجراء مسح للطفيليات الأولية التي تصيب الطيور المائية بمحافظة أسيوط بعصيد مصر وجد الباحثون طفيل جديد من جنس هيموبروتيس هيموبروتيس نيتونز كلوروبس في الدجاج البرى لأول مرة في مصر وربما في العالم كله ، وقام الباحثون بدراسة دقيقة للصفات المورفولوجية المختلفة لهذا الطفيل الجديد ومقارنته بالانواع الأخرى التي سبق وصفها من نفس النوع في الطيور المختلفة سواء المستأنسة أو البرية • وقد وجد الباحثون أن هناك اختلافات عديدة بالمقارنة بنوع هيموبروتيس نيتونز الذي يصيب الطيور المائية بصفة عامة حيث وجد أن الحبيبات المصبغة في الطفيل الجديد صغيرة جدا ولامعة ومنعكسة وهي منتشرة في كل السيتوبلازم ، هذا الى جانب الاختلافات الواضحة في شكل ووضع الجاميتوسيتات المذكورة والموعثة والتي توءثر في زيادة حجم الخلية الحمراء المصابة • ويعتبر هذا تحت نوع جديد أعطى اسم هيموبروتيس نيتونز كلوروبس نسبة الى اسم الطائر المصاب • ويعتبر الدجاج المائي عائلا جديدا لهذا الطفيل قد ينتقل الى الطيور الداجنة في مصر ويؤثر على نموها وكذلك اقتصادياتها •

Dept. of Parasitology,  
Fac. of Med., Assiut University,  
Head of Dept. Prof. Dr. M. Zaki

**HAEMOPROTEUS NETTIONIS CHLOROPUS (NEW SUBSPECIES)**  
**FROM GALINULA CHLOROPUS CHLOROPUS (MOORHEN)**  
**IN ASSIUT GOVERNORATE, UPPER EGYPT**  
(With 10 Figures)

By

**M.E.M. MONIB; A.A. SAKLA and A.M. MANDOUR**  
(Received at 16/3/1988)

**SUMMARY**

Haemoproteus nettionis Chloropus (new subspecies) was recovered from a naturally infected water fowl, Gallinula Ghloropus chloropus in Assiut Governorate, Upper Egypt. The characteristic morphological features of the macro- and microgametocytes were described, illustrated and compared with other species recorded in domestic and wild birds. It was found to be different from Haemoproteus (Parahaemoproteus nettionis (JOHNSTON and CLELAND, 1909) COATNEY, 1936, a parasite of wild water fowl. The pigment granules of the parasite under discussion were minute, transparent, refractile and usually distributed all over the cytoplasm. Also, the gametocytes differ in their shape, and position among the infected erythrocytes.

A new subspecies was Proposed for this parasite: Haemoproteus nettionis chloropus new subspecies.

**INTRODUCTION**

Members of the genus Haemoproteus are parasites of birds, reptiles and few amphibia. About 154 valid species have been recorded (LEVINE, 1985).

In Egypt, MOHAMED (1958) found that 40.4% of pigeons were infected with Haemoprotous columbae in his survey on the blood protozoa of the Egyptian birds. MAKHLOOF (1975) described two different varieties of H.columbae in domestic pigeons in Assiut area. ABDEL SALAM (1978) found H.columoae in 73.3% of the examined pigeons. GAD (1982) found 92.4% of domestic pigeons infected with H.columbae.

During a survey of parasitofauna of aquatic birds of Assiut Governorate, Upper Egypt, a new subspecies H.n. chloropus was encountered by the present authors in the water fowl, Gallinula chloropus chloropus. the present subspecies differs from the previously described species in the number, size, and distribution of the pigment granules all over the cytoplasm. The micro and macro-gametocytes may also differ in their shape, and position within the infected erythrocytes.

**MATERIAL and METHODS**

Thin blood films were collected from the tip of the nail on a clean slide. The films were dried, fixed in absolute methyl alcohol and stained with Giemsa's stain as usual. drawings were made by the aid of Camera Lucida. Measurements were made according to MOHAMED (1958).

## RESULTS

One out of thirteen moorhen, Gallinula Chlorops chloropus was found to harbour Haemoproteus parasite. The intensity of infection was very high (72% of the infected R.B.C.). Neither mixed infection with other blood parasites, Nor multiple infections were encountered.

The characteristic features of the macro and microgametocytes were as follows:

### A) Macrogametocytes :

The macrogametocyte was located in a lateral side position with one or both ends projecting beyond the pole of the nucleus of the infected cells. The female gametocyte was elongated, sausage like, halter shaped bodies and partially encircle the host cell nucleus at one side (Fig. 1). A cap-like position, encircle the host cell nucleus pole, was encountered in few occasions (Fig. 2, 3). The mature female gametocyte was separated from the membrane of the infected cells. On the other hand, a macrogametocyte with finger-like irregular processes at both ends were not uncommon (Fig. 4 & 5). Furthermore, the macrogametocyte was never found to contact the facing side of the host cell nucleus. The cytoplasm stained blue colour with Giemsa's stain and has a finely granular matrix which was usually vacuolated. The pigment granules were detected as refractile, translucent very fine granules. Its numbers varied from 5-7 granules at either pole of the parasite. Also, the granules were distributed all over the cytoplasm but became more concentrated at the periphery of the parasite. In some occasions, the granules became more compact and dense.

The nucleus of the female gametocyte is usually in the form of a compact mass of chromatin deeply stained pink colour. It may be spherical or semispherical in shape and centrally or subcentrally located (Fig. 1, 2, 3, 4 & 5).

The nucleus does not adhere to the inner or the outer border of the gametocyte. The measurements of the macrogametocytes ranged from 11 to 13 microns in length (average 12 microns), and 2-2.5 microns in width (average 2.75 microns).

### B) Microgametocytes :

The morphological appearance of the male gametocytes were more or less similar to that of the female gametocyte, but they are usually smaller in size with faintly stained cytoplasm and diffuse irregular nucleus (Fig. 6, 7 & 8). The microgametocyte was never seen assuming the cap-like position while spherical form was uncommon (Fig. 9). The pigment granules were detected as that previously mentioned in the macrogametocytes. The measurements of the microgametocytes ranged from 8-11 microns in length (average 9 microns), and 4 to 5.5 microns in width (average 4.75 microns).

Multiple infection in the red blood corpuscle was not detected, while distortion of the infected erythrocytes were encountered. The nucleus of the infected red cells were displaced to one pole. The infected red blood corpuscle was slightly enlarged. The average measurements of a normal uninfected erythrocyte was 11.2 microns in length, and 7.0 microns in width (Fig. 10).

## DISCUSSION

LEVINE (1961, 1973 & 1985) stated that members of the genus Haemoproteus are parasites of birds, reptiles and a few amphibia. They are extremely common parasites of wild birds and also occur in domestic pigeons, ducks and turkeys. On the other hand he

**HAEMOPROTEUS NETTIONIS CHLOROPUS FROM MOORHEN**

stated that 154 species were recorded, 130 in birds, 20 in reptiles, and 4 in amphibia.

He added that Haemoproteus (parahaemoproteus) nettionis (JONNSTON and CLELAND, 1909), COATNEY, 1939, was essentially a parasite of wild water fowl and may be infecting domestic birds in heavily endemic regions. In this species, the mature macrogametocytes and microgametocytes were elongate, and sausage shape, partially encircling the host cell nucleus and often displacing it. They contain twenty four pigment granules which were usually coarse and rounded and tend to be grouped at the end of the cell, while the infected erythrocyte was not affected or enlarged COATNEY (1936), HERMAN (1944), GARNHAM (1966) COOK (1971 and SOULSBY, 1982).

The parasite under discussion was fully described. The macro and micro-gametocytes showed some differences in shape and position. There was a marked difference in the cytoplasmic granules which differ in their site, number (which varied from 5-7), size, and distribution. In the present parasite the pigment granules were scattered at the periphery of the parasite, very minute, refractile and translucent. Also the infected red blood corpuscles were markedly enlarged. Further more the multiple infections were not encountered during the present work. All these differences appear to be enough to create a new subspecies. It is worthwhile mentioning here that this new subspecies is described in Egypt for the first time, to which is proposed. Type material is deposited in the Department of Parasitology, Faculty of Medicine, Assiut University.

**Digagnosis :**

- Host: Moorhen, Gallinula, chloropus chloropus.
- Locality : Assiut territory, R.B.Cs.
- Measurement : Macrogametocytes (11-13) microns in length.
  - (2-2.5) microns in width.
- Microgametoste: - (8-11) microns in length.
  - (4-5.5) microns in width.
- Type material is deposited in the Department of Parasitology, Faculty of Medicine, Assiut University.

**REFERENCES**

- Abdel Salam, F.A. (1978): The role of soft ticks in transmission of parasitic diseases in domestic birds in Assiut Governorate. M.V.Sc. Thesis, Fac. of Vet. Med. Assiut Univ. Egypt.
- Coatney, G.R. (1936): A check-list and host index of the genus Haemoproteus, J. parasit., 22, 88-105.
- Cook, R. (1971): Haemoproteus Kruse (1890). In: Infection and parasitic disease of wild birds, eds J. W. Dawis, R.C. Anderson, L. Karstad & D.O. Trainer, pp. 300-308 Ames, Iowa state University Press.
- Gad. N.A. (1982): Studies on some blood proteozoa and ecto parasite of birds with special reference to method of control. Ph.D. Thesis, Fac. of Vet. Med., Assiut Univ. Egypt.
- Garnham, P.C.C. (1966): Malaria parasites and other haemosporidia Black well Scientific Publication oxford.
- Herman, C.M. (1944): The blood protozoa of north american birds. Bird Banding, 15, 89-112.
- Levine, N.D. (1961): Protozoan parasites of domestic animals and man Minneapolis Minn. Burges. Publish, Company, Minnesota, U.S.A.

**M.E.M. MONIB, et al.**

- Levine, N.D. (1973): Protozoan parasites of domestic animals and man Minneapolis Minn. Burges. Publish. Company, 2<sup>nd</sup>. eddition Minnesota, U.S.A.
- Levine, N.D. (1985): Veterinary protozoology, Iowa, State Univ. Press. Ames. U.S.A.
- Makhloof, L.M. (1975): Studies on the role played by some Insects in transmitting some parasitic diseases in Assiut province. M.D. Thesis., Fact. of Med., Assiut Univ. Egypt.
- Mohamed, A.H. (1958): Systemic and experimental studies on protozoal blood parasites of Egyptian birds Vol. I. 11., Faculty of Science publication.
- Soulsby, E.J.L. (1982): Helminths, Arthropods and Protozoa of Domesticated Animals. (Seventh Edition of Monnig's Veterinary Helminthology & Entomology). London, Bailliere, Tindall & Cassel.

SECRET

1. The purpose of this document is to provide information regarding the activities of the [redacted] in the [redacted] area. This information is being provided to you for your information only and should not be disseminated to other personnel.

2. The [redacted] has been identified as a [redacted] and is currently active in the [redacted] area. It is believed that the [redacted] is involved in [redacted] activities and is a potential threat to the [redacted] area.

3. It is recommended that you remain alert for any signs of [redacted] activity in the [redacted] area. If you observe any suspicious activity, you should immediately report it to the [redacted] office.

4. This information is classified as [redacted] and should be handled accordingly. It is the policy of the [redacted] to protect this information from unauthorized disclosure.



1



2



3



4



5



6



7



8



9



10

20  $\mu$



Faint horizontal line or text at the bottom center of the page.